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10/594,568

11/01/2006

Ralph Edmund Harris

117-604

6594

23117

7590

12/02/2011

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EXAMINER

DITRANI, ANGELA M

ART UNIT

PAPER NUMBER

3676

MAIL DATE

DELIVERY MODE

12/02/2011

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/594,568 | HARRIS ET AL. | |
| | Examiner | Art Unit | |
| | Angela M. DiTrani | 3676 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 October 2011.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 5) ☒ Claim(s) 41-67 and 76-78 is/are pending in the application.
- 5a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 6) ☐ Claim(s) ____ is/are allowed.
- 7) ☒ Claim(s) 41-67 and 76-78 is/are rejected.
- 8) ☐ Claim(s) ____ is/are objected to.
- 9) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 12) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Information Disclosure Statement

1. On the IDS filed 10/13/11, the reference to 2005/034861 has not been considered insofar as because there is no pre-grant publication with that number.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Claims 41-66 and 76-78 are rejected under 35 U.S.C. 103(a) as being unpatentable over Todd (US 7,195,068 '068 herein) in view of Todd et al. (US 7,080,688- '688 herein).

With respect to independent claim 41, '068 discloses a process for disrupting filter cake in an underground formation, which process comprises: dispersing in a treatment fluid a polymer capable of being converted by hydrolysis into one or more organic acids (col. 5, l. 44-58); introducing the treatment fluid into said underground formation containing said filter cake (col. 6, l. 62 – col. 7, l. 47); and allowing the polymer to hydrolyze in the presence of water to produce organic acid such that acid soluble material within the filter cake or adjacent formation is dissolved (col. 5, l. 45-58; col. 6, l. 28- col. 7, l. 47).

'068 discloses wherein a coating comprising the polymer capable of being converted by hydrolysis into one or more organic acids is placed on the delayed release oxidizer; the coating may release an acid upon degradation downhole that is used in the filter cake degradation process (col. 4, l. 35 - col. 5, l. 58). The reference, however, fails to disclose wherein the polymer is a solid polymer as claimed.

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'688 teaches the coating of particulates with polymer capable of being converted by hydrolysis into one or more organic acids wherein a solid polymer is used to coat the material onto a particulate (i.e., sphere or "other" configuration; col. 4, l. 47-56) for the purpose of providing a release of the acid hydrolyzed therefrom downhole so as to be used in a filter cake degradation process (col. 3, l. 9-25).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to coat the delayed release oxidizer of '068 with a solid polymer capable of being converted by hydrolysis into one or more organic acids as taught by '688 in order to provide an organic acid released downhole that can be used in a filter cake degradation process.

With respect to depending claims 42-46, '068, in view of the solid polymer of '688, discloses wherein the polymer is a polyester, an aliphatic polyester, a polymer comprising one or more compounds selected from the groups as claimed (col. 5, l. 44-54).

With respect to depending claim 47, '068 discloses wherein one or more other substances selected from the group as claimed is incorporated into the polymer by encapsulation to allow their controlled release coincident with or after acid production (col. 4, l. 35 - col. 5, l. 58).

With respect to depending claim 48, '068 discloses wherein one or more other substances selected from the group as claimed is incorporated into the solid polymer by dissolution or dispersion to allow their controlled release coincident with acid production (col. 4, l. 35 - col. 5, l. 58).

With respect to depending claim 49, '068 discloses wherein the said one or more other materials, chemicals, catalysts and enzymes released from the solid polymer have functional activity for filter cake treatment or as production chemicals (col. 3, l. 28 – col. 4, l. 34).

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With respect to depending claim 50, '068, in view of '688 as provided above, teaches wherein the solid polymer is selected from the group as claimed (see rejection of claim 1 above).

With respect to depending claim 51, '068 discloses incorporating a buffer into the treatment fluid (col. 6, l. 29-52, i.e., wherein the acid released from the delayed release acid component alters the pH of the filter cake degradation compound, thereby functioning as a buffer therein).

With respect to depending claim 52, '068 discloses incorporating into the treatment fluid one or more polymer breakers (col. 3, l. 28 - col. 3, l. 34).

With respect to depending claims 53 and 54, '068 discloses wherein the polymer breaker is a hydrolase enzyme, and, further, wherein the polymer breaker is a polysaccharide hydrolyzing enzyme (col. 6, l. 36-39).

With respect to depending claim 55, '068 discloses wherein the polymer breaker is an enzyme (col. 6, l. 36-39) which can hydrolyze a polymer selected from the group as claimed (col. 3, l. 22-24).

With respect to depending claims 56 and 57, '068 discloses wherein the polymer breaker is an oxidant, and, further, wherein the oxidant is selected from the group as claimed (col. 3, l. 28- col. 3, l. 34).

With respect to depending claim 58, '068 discloses wherein the polymer breaker is in the form of a delayed release preparation (col. 4, l. 35 - col. 5, l. 58).

With respect to depending claim 59, '068, in view of the solid polymer of '688, discloses wherein the treatment fluid is a gravel packing fluid which comprises one or more solid polymers and one or more polymer breakers (col. 3, l. 28 - col. 5, l. 58).

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With respect to depending claim 60, '068 discloses wherein the treatment fluid disrupts or degrades at least a portion of the filter cake and increases the permeability of the formation (col. 6, l. 53 – col. 7, l. 65).

With respect to depending claim 61, '068 discloses wherein at least a portion of the polymer remains in the underground formation and continuously releases organic acid and a production chemical during hydrocarbon production or water injection until the polymer has completely hydrolyzed (col. 6, l. 53 - col. 7, l. 65).

With respect to depending claim 62, '068 discloses wherein the underground formation contains hydrocarbon or water and wherein the process further comprises recovering a hydrocarbon or water from the treated formation (col. 1, l. 39-55; col. 6, l. 62 – col. 7, l. 28).

With respect to depending claim 63, '068 discloses wherein the treatment fluid containing the solid polymer is introduced into the formation via a well bore which extends to the formation (col. 6, l. 62- col. 7, l. 65).

With respect to depending claims 64 and 65, '068 discloses wherein the filter cake degradation composition may be used in conjunction with a gravel pack operation wherein “other additives typically used with a gravel pack treatment in such an application may be present (col. 6, l. 62- col. 7, l. 28). The reference, however, fails to explicitly disclose wherein the treatment fluid further comprises an acid sensitive viscosifying agent and wherein the viscosity of the fluid is reduced by the acid generated by hydrolysis of the solid polymer, and, further, wherein the viscosifying agent is borate crosslinked guar gum as claimed. The Examiner hereby takes Official Notice in that it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ an acid sensitive viscosifying agent of

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borate crosslinked guar gum as claimed, wherein the viscosity of the fluid is reduced by the acid generated by hydrolysis of the solid polymer insofar as because borate crosslinked guar gums are known additives used to viscosify fluids employed in gravel packing operations, wherein the viscosity thereof is broken subsequent to the creation of the gravel pack.

With respect to depending claim 66, '068 discloses wherein the treatment fluid further comprises calcium peroxide and wherein the organic acid produced by hydrolysis of the solid polymer leads to the generation of hydrogen peroxide (col. 3, l. 43-52).

With respect to depending claim 76, '068 discloses wherein the said one or more other materials, chemicals, catalysts and enzymes released from the solid polymer have functional activity for filter cake treatment or as production chemicals (col. 3, l. 28 – col. 4, l. 34).

With respect to depending claim 77, '068 discloses wherein the polymer is a polymer which comprises one or more compounds selected from the group as claimed (col. 5, l. 44-54).

With respect to depending claim 78, '068 discloses wherein the treatment fluid is a gravel packing fluid (col. 6, l. 62-col. 7, l. 27) which, in view of '688, comprises one or more solid polymers.

4. Claim 67 is rejected under 35 U.S.C. 103(a) as being unpatentable over '068 in view of '688 as applied to claim 41 above, and further in view of Constien (US 2002/0142919 – cited previously).

'068 in view of '688 teaches the process as provided above with respect to claim 41 wherein '068 discloses the inclusion of a delayed release oxidizer in the filter cake degradation composition for the purpose of dissolving polysaccharide materials in the filter cake. The reference, however, fails to disclose wherein the composition includes ammonium bifluoride and

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wherein the organic acid produced by hydrolysis of the polymer leads to the generation of hydrogen fluoride as claimed.

Constien teaches a method of degrading filter cakes in a subterranean formation wherein strong acids are created in the well bore from reactive materials placed therein; for example, ammonium bifluoride is included with a solid organic acid for the purpose of generating hydrogen fluoride upon hydrolysis of the solid organic acid so as to hydrolyze polysaccharide materials in the well bore.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to try a material such as ammonium bifluoride as the delayed release component in the process of '068 in order to produce hydrogen fluoride upon hydrolysis of the organic acid so as to hydrolyze and degrade polysaccharide materials contained within the filter cake.

Response to Arguments

5. Applicant's arguments, with respect to the rejection(s) of claim(s) as set forth in the previous action have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of further consideration of the pending claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angela M. DiTrani whose telephone number is (571)272-2182. The examiner can normally be reached on M-F, 7:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shane Bomar can be reached on (571)272-7026. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Angela M DiTrani/

Primary Examiner, Art Unit 3676

AD

12/01/11